

The Office Action asserts that Laskaris does not teach away from applicants' claimed invention. Applicants submit that Laskaris teaches how to rigidly fix an MRI system to the floor in order to reduce vibration, rather than provide a vibration isolation system. The Office Action asserts that Kim provides motivation to add a vibration isolation system to an MRI assembly. Applicants submit that Kim does not provide such motivation because Kim teaches how to isolate the environment from machine vibration, not how to isolate a machine from environmental vibration. The Office Action also asserts that Kim is analogous art. In contrast, Kim is not in the field of applicants' endeavor and is not pertinent to the problem the applicants are concerned with, as will be described in more detail below.

I. Laskaris Teaches Away From a Vibration Isolation System

The Office Action asserts that Laskaris does not teach that the skirt is used for vibration reduction and that applicant has not claimed any structural differentiation between the vibration design of Laskaris and the invention as claimed. Applicants respectfully disagree.

The Laskaris patent specifically states that the support skirt "stiffens the support of the magnet...which reduces the susceptibility of the open magnet to vibrate at the dominant low-excitation-frequencies imparted to the magnet by the presence of a cryocooler coldhead attached to an assembly." (Col. 2, Lines 58-64). Laskaris teaches away from the claimed invention since the MRI system in Laskaris must be rigidly fixed to the floor to reduce vibration. Laskaris' system is a rigid vibration suppression system and not a vibration isolation system. The claimed isolation system is distinguished from Laskaris as it isolates vibration from the MRI, rather than fixes the MRI to the floor. "Isolation" does not mean "rigid mount" because a rigid mount allows floor vibrations to permeate through the MRI. An isolation system does not. "Isolation" is defined as "to render free of external influence." WEBSTER'S II NEW COLLEGE DICTIONARY 588 (1995). The claimed isolation system reduces or eliminates external vibrations from affecting the MRI system through the floor mount. In contrast, Laskaris rigidly couples the MRI to the floor, to prevent or

reduce cryocooler coldhead induced vibration.

As correctly noted by the Office Action, Laskaris does not teach a vibration isolation system. In fact, Laskaris teaches to rigidly mount the magnet assembly 10 to the floor 42 by using a rigid support skirt 20 (see Figures 1 and 2 and col. 4, lines 31-46 of Laskaris). The skirt 20 contains a rigid cylindrical wall 50 that is bolted to the floor 42. The stated advantage from using the skirt of Laskaris is that it “stiffens the support of the magnet” to reduce vibration. (See column 2, lines 55-65 of Laskaris). Thus, Laskaris actually teaches away from using a vibration isolation system with the MRI magnet assembly because Laskaris solves the vibration problem by making the MRI mount to the floor more rigid than before, rather than less rigid. A prior art reference cannot be used in a § 103(a) rejection where the prior art reference teaches away from the claimed invention. MPEP § 2145 (X)D.

One of ordinary skill in the art would not be motivated to non-rigidly mount an MRI system to the floor from the teaching of Laskaris because one of ordinary skill in the art understands that MRI measurements are very position sensitive. Thus, one of ordinary skill in the art would understand that a non-rigid MRI mounting of the MRI system of Laskaris would cause errors in the MRI measurements based on the teaching in Laskaris.

In contrast, the present inventors have realized that all sites containing an MRI system are subject to some kind of environmental disturbance, such as from electrical or mechanical equipment installed within the same building. The environmental disturbances or vibrations excite the MRI system magnets through the MRI system’s attachment to the building, such as through the floor, walls or ceiling of a room of a building containing the MRI system. The most significant such attachment is the foot support, which is fastened to the floor to secure the magnets of the MRI system. The foot support transmits the environmental disturbances and vibrations to the magnets of the MRI system, thus degrading the image quality. This is discussed in paragraph [0012] of the present application.

Thus, the present application teaches to proceed contrary to the accepted wisdom in the art. The claimed invention is directed to using a vibration isolation system with a magnet assembly, while the prior art MRI magnet assembly is rigidly mounted to the floor. Proceeding contrary to the accepted wisdom in the art is evidence of non-obviousness. MPEP § 2145(X)D(3).

II. There is No Motivation to Combine Laskaris and Kim

The Office Action asserts that a skilled artisan would have been motivated to seek solutions, such as Kim, to isolate machinery from vibrations. Applicants respectfully disagree. Kim provides no motivation to add a vibration isolation system to a magnet assembly. Kim's invention teaches how to isolate the environment from machine vibration. Laskaris and the applicants' invention teach how to isolate a machine from environmental vibration. Kim teaches a compressor assembly with enhanced vibration suppression. Kim provides no teaching or suggestion that a vibration isolation system would be useful as a support for an MRI magnet assembly. The compressor of Kim vibrates and produces noise. The vibration isolation system of Kim is used to reduce the vibration and noise from the compressor to the environment (see abstract and Col. 1, lines 43-49 of Kim). In contrast, transmission of vibration and noise from the MRI to the environment is not a concern in the MRI of Laskaris. Instead, Laskaris is concerned with limiting the vibration of the MRI magnet assembly itself due to the presence of a cryocooler coldhead (see col. 2, lines 1-5 and col. 2, line 65 to col. 3, line 17 of Laskaris). Thus, there is no motivation to combine Laskaris and Kim, since reduction of vibration from the MRI to the environment is not a concern in Laskaris. The differences between Laskaris, Kim and the claimed system is summarized in the Table below:

Laskaris	Suppresses vibration of	MRI	from	cryocooler coldhead
Kim	Isolates	environment	from	compressor
Claimed System	Isolates	MRI	from	environment

Furthermore, if the MRI magnet assembly of Laskaris was modified as suggested in the Office Action, then this would change the principle of operation of the MRI magnet assembly of Laskaris. Such a modification is impermissible according to the last subsection of MPEP § 2143.01. There are different ways to reduce vibration. One way is to ensure that the machine is rigidly mounted to the floor, as taught by Laskaris. The vibration of the MRI magnet assembly of Laskaris is reduced based on this principle of operation (see col. 2, lines 56-65 of Laskaris). In contrast, the claimed invention is based on the opposite principle of reducing magnet assembly vibration by using a vibration isolation system. There is no motivation to modify the MRI system of Laskaris as suggested by the Office Action because it would change the principle of operation of the MRI system of Laskaris.

III. Kim is Non-Analogous Art

According to MPEP § 2145(IX), a prior art reference is non-analogous art if the prior art reference is not in the field of the applicants' endeavor and if it is not pertinent to the problem with which the applicants are concerned. Kim is non-analogous art because it meets both prongs of this test.

First, Kim is directed to a compressor assembly, while the claimed invention is directed to an MRI system. Thus, Kim is clearly not in the field of applicants' endeavor. The Office Action tacitly admits this when it asserts that Kim is reasonably pertinent to the particular problem applicants are concerned and fails to discuss whether Kim is in the field of applicants' endeavor.

Second, Kim is not pertinent to the problem to which the applicants are concerned.

The Office Action asserts that both applicant and Kim seek to isolate machinery from vibration. Applicants respectfully disagree. Kim is concerned with preventing the compressor from vibrating the adjacent support plate. Thus, Kim is concerned with preventing the transfer of the vibration from the compressor to the environment. In contrast, the claimed invention is concerned with preventing the transfer of vibration from the environment to the MRI system. Thus, the claimed invention solves the opposite problem that Kim is trying to solve. Therefore, Kim is non-analogous art and cannot be properly used in a 35 U.S.C. § 103(a) rejection of the claims of the present application.

IV. The Rejection of Dependent Claims Should be Withdrawn

Claims 2-4, 12-13, 15-17 and 22 were rejected under §103(a) over Laskaris and Kim and further in view of Ohsaki. Claims 5-6 and 18 were rejected under §103(a) over Laskaris and Kim and further in view of Braun. These rejections are respectfully traversed.

Ohsaki is directed to a photolithography exposure apparatus. Ohsaki provides no motivation for providing a vibration isolation system for an MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Ohsaki.

Furthermore, claims 2-4, 12-13, 15-17 and 22 were rejected over Laskaris, which teaches an MRI system, in view of Kim, which teaches a compressor, in view of Ohsaki, which teaches an exposure apparatus. Applicants submit that this combination is based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A.

Braun is directed to a vibration isolation system that is used in engines, pumps and helicopters (col. 1, lines 14-20). Braun provides no motivation for providing a vibration isolation system for an MRI system, such as the system of Laskaris. Thus, there is no motivation to combine Laskaris and Braun.


Furthermore, claims 5-6 and 18 were rejected over Laskaris, which teaches an MRI system, in view of Kim, which teaches a compressor, in view of Braun which teaches a vibration isolation system that is used in engines, pumps and helicopters. Applicants submit that this combination is also based on an improper hindsight reconstruction gained solely from the applicants' disclosure. One of ordinary skill in the art would not be motivated to combine these three unrelated references from different fields of endeavor without relying on the knowledge gained from the applicants' disclosure. See MPEP 2145(X)A.

CONCLUSION

In view of the foregoing, applicants respectfully submit that the pending claims are in condition for allowance. An early notice to this effect is earnestly solicited. Should there be any questions concerning this application, Examiner Donovan is invited to contact the undersigned at the number listed below.

Respectfully submitted,

9/2/02
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i-som-er-ous (i'sŏm-'ar-as) *adj.* 1. Having an equal parts, as organs or markings. 2. Having or designating with equal numbers of parts.

i-so-metric (i'sŏ-mĕt-'rik) *also* **i-so-met-ric** (i'sŏ-mĕt-'rik) *adj.* **[Ck** *isometros*, of equal measure : *isos*, equal + *metros*, measure.] 1. Of or exhibiting equality in measurements or dimensions. 2. Of or relating to a crystal system of three equal and mutually orthogonal axes. 3. Of or involving muscular contraction against resistance, as in the case of the heart. 4. Of or relating to the out significant shortening of the muscle with the result of a muscle tone. — **i-isometric**. 1. A line connecting isometric points. 2. **i-isometric exercise** *n.* Exercise involving isometric contraction.

i-so-me-tro-pi-a (i'sŏ-mĕ-trō-'pĕ-a) *n.* [Ck. *isometropia*, equality of refraction in both eyes.] 1. Equality of refraction in both eyes. 2. Elevation above sea level.

i-so-morph (i'sŏ-mŏrf) *n.* An object, organism, or group of organisms that is isomorphic.

i-so-mor-phic (i'sŏ-mŏr-'fik) *adj.* 1. Being of identical form, shape, or structure. 2. Related by an isomorphism.

i-so-mor-phism (i'sŏ-mŏr-'fiz-'əm) *n.* 1. Biol. Similarity in form or structure between organisms of different ancestry. 2. Math. a. A one-to-one correspondence between the elements of two sets such that the result of an operation on elements of one set corresponds to the result of the same operation on their images in the other set. b. A mapping of a group *G* onto another group *H* such that $(ab)^n = (a^n)(b^n)$ for all *a*, *b* in *G*. 3. The existence or an instance of the existence of two or more different substances with closely similar crystalline structures and chemical composition. — **i'so-mor-phous** *adj.* 1. Having identical chemical composition. 2. Having identical crystalline structures.

i-so-ni-a-zid (i'sŏ-ni-'a-zid) *n.* [ISON(COTINIC ACID) + *amide* (from *zine*)] A crystalline compound, $C_8H_8N_2O_2$, used for treating gonorrhea.

i-so-oct-ane (i'sŏ-ŏk-'tān) *n.* A highly flammable liquid, C_8H_{18} , used to determine the octane numbers of fuels.

i-so-pi-es-tic (i'sŏ-pi-'ĕs-'tik, -pĕ-) *adj.* [iso- + Gk. *piestis*, to be compressed + *piezein*, to press tight.] Characterized by or resulting in equal pressure : **ISOBARIC**. — *n.* An isobar.

i-so-pod (i'sŏ-'pŏd') *n.* [NLat. *Iso-poda*, order name : *iso-*, equal + *poda*, foot.] Any of various crustaceans of the order *Iso-poda*, which have two pairs of legs and antennae.

i-so-pre-ne (i'sŏ-'prĕ-n') *n.* [iso- + FR(OPTIL) + *-ene*.] A colorless, mobile liquid, C_8H_{16} , used primarily in making synthetic rubber.

i-so-prop-yl alcohol (i'sŏ-'prŏp-'əl) *n.* A clear, colorless, flammable, mobile liquid, C_3H_8O , used in antifreeze compounds, lotions, and cosmetics and as a solvent for shellac, gums, and essential oils.

i-so-sce-les (i'sŏs-'a-lĕz') *adj.* [LLat. *isosceles* < Gk. *isos*, equal + *skelos*, leg.] Having two equal sides.

i-so-seis-mic (i'sŏ-'sĭz-'mĭk) *also* **i-so-seis-mal** (i'sŏ-'sĭz-'māl) *adj.* Relating to, or exhibiting equal seismic intensities.

i-so-mot-ic (i'sŏz-'mŏt-'ik, -sŏz-) *adj.* Of or exhibiting equal isotonic pressure.

i-so-spin (i'sŏ-'spĭn') *n.* [ISO(TOPIC) + *spin*.] A quantum number related to the spin of a number of charge states of a subatomic particle such as a neutron or meson.

i-so-ta-sy (i'sŏ-'tā-sĕ) *n.* [iso- + Gk. *stasis*, a standstill.] Equilibrium caused by isotropic equalization of pressure.

i-so-therm (i'sŏ-'thĕrm') *n.* [Fr. *isotherme*, having the same temperature : Gk. *isos*, equal + Gk. *thermē*, heat.] A line on a weather map or chart linking all points having identical mean temperature for a specified period or identical temperature at a specified time.

i-so-ther-mal (i'sŏ-'thŏr-'māl) *adj.* 1. Of, relating to, or registering at constant temperatures. 2. Of or designating changes of pressure and volume at constant temperature. 3. Of or relating to an isotherm.

i-so-tone (i'sŏ-'tŏn') *n.* [iso- + Gk. *tonos*, tension, stretching.] One of two or more atoms whose nuclei have the same number of neutrons and different numbers of protons.

i-ton-ic (i'sŏ-'tŏn-'ik) *adj.* [iso- + Gk. *tonos*, tension.] 1. Equal in tension. 2. Isosmotic. — **i'so-ton-'i-cal-ly** *adv.* — **i'so-ton-'i-cal** *adj.*

i-top-ic (i'sŏ-'tŏp') *n.* [iso- + Gk. *topos*, place.] One of two or more atoms whose nuclei have the same number of protons but different numbers of neutrons. — **i'so-top-'ic** (-tŏp-'ik) *adj.* — **i'so-top-'ic-ly** *adv.*

isotopic spin *n.* Isospin.

isotro-pic (i'sŏ-'trŏp-'ik, -trŏp-'ik) *adj.* Identical in all directions.

isot-ro-py (i'sŏt-'rŏ-'pĕ), **i-so-tro-pism** (-plz-'əm) *n.* Isotropy.

is-zy-me (i'sŏ-'zĭm') *n.* [iso- + (EN)ZYME.] Isoenzyme.

iz-ē-lē (iz-'ĕ-lĕ) *n.* [Lat. < Gk. *Israel* < Heb. *Yisrā'el*.] 1. Jacob, or descendants of Jacob. 3. The Hebrew people, regarded as the chosen people of God by virtue of the covenant of Jacob.

iz-ē-li (iz-'ĕ-lĕ) *adj.* Of or relating to the state of Israel or its people. — *n.* **pl.** **Israeli** or **-Isi**. A native or resident of the state of Israel.

iz-el-ite (iz-'ĕ-lĕ-'it') *n.* 1. A native or inhabitant of ancient Israel.

[illegible]